

Waste Reduction Activities for Hospitals

Waste prevention means eliminating waste before it is created. It's a proven cost-effective approach that helps both your bottom line and the environment. Combined with a comprehensive recycling effort, hospitals can significantly reduce their waste. All activities on this fact sheet have been implemented by some hospital in the United States or have been provided by a medical professional.

Waste, here today and tomorrow

Californians generate 45 million tons of waste each year. That's equivalent to eight pounds per person per day! Meanwhile, landfills are filling up as it becomes more costly and difficult to site new ones.

To address this problem, in 1990 the California legislature mandated that local jurisdictions reduce their solid waste generation by 25 percent in 1995 and 50 percent in the year 2000. All of us, at home and work, have a responsibility to conserve resources for future generations.

Fortunately, many waste prevention practices save money. Waste reduction, the combination of waste prevention and recycling efforts, makes good business sense.

Resource efficiency begins by understanding what is purchased, how goods are used, and what is discarded, and then is put to use by finding ways to eliminate, reduce, reuse, and recycle materials.

Strategies for reducing waste

Contrary to popular belief, nonhazardous medical waste makes up nearly 3/4 of the waste generated in a hospital and should not be overlooked.

A good strategy is to target the largest components of the waste stream and do the easy waste reduction steps first. In column 2 is a chart showing the solid waste composition in hospitals in the City of Los Angeles. Although waste varies, in most hospitals the largest components of the waste stream are paper (especially cardboard, mixed paper, newspapers, and high-grade paper), plastics (especially film plastic), food waste, and disposable linens (a combination of paper and other materials). Yard trimmings may be a

Custodial services

- Renegotiate contracts with haulers of "red bag" or regulated medical waste to provide clean and reusable containers.

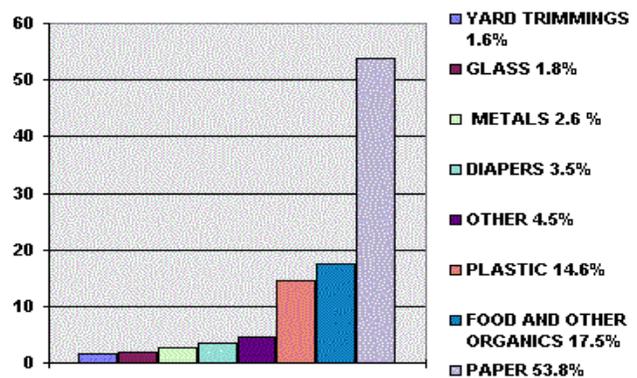
The New York City Department of Sanitation estimates that a 1,000-bed hospital switching from

much higher percent of your waste stream if your hospital has a large landscaped area. See Appendix A for a more detailed listing of these materials.

Along with preventing waste and recycling, it is important to purchase products made from recycled materials. This makes recycling successful by stimulating demand for recycled materials.

Finally, consider rewarding employees for their successful waste reduction ideas. Some hospitals reward employees with cash bonuses and recognition.

Percent Solid Waste Composition (by Weight) in Hospitals*



Based on composition of waste in nine Los Angeles city hospitals (1990)

* Finding waste reduction ideas

Following are ideas to help you identify waste reduction opportunities at your hospital. By setting up a solid waste management program you can turn ideas into action. (See Appendix B for guidebooks on how to set up your own solid waste management program.)

disposable to reusable containers for sharp medical instruments would achieve:

Cost savings per year: \$175,000

Waste prevention in pounds per year: 34,000

- Eliminate plastic trash bag liners in administrative areas.

The New York City Department of Sanitation estimates that a 1,000-bed hospital making this change would achieve:

Cost savings per year: \$20,000

Waste prevention in pounds per year: 14,000

- Buy most cleaning substances in 55-gallon drums that are refilled by the supplier.
- Use concentrated cleaning solutions that staff can mix as needed.
- Use washable mop heads instead of disposable ones.

Purchasing

- Buy in bulk whenever possible; it saves packaging.

Legacy Good Samaritan Hospital (341 beds) in Portland, Oregon switched from buying juice in 32-oz glass containers to 60-oz plastic containers that the hospital recycles.

Cost savings per year: \$125

Waste prevention in pounds per year: 2,500

- Select or ask vendors to follow packaging preference criteria:
*No packaging or minimal packaging.
Consumable, returnable, refillable, reusable packaging.
Recyclable packaging/recycled material in packaging.*
- Improve ordering practices so perishable products don't become outdated and unusable.
- Cut down on multiple subscriptions of medical publications by asking staff to share journals and magazines.
- Reuse packaging.

Kaiser Permanente Northwest Region receives more than 24,000 glasses and contact lens boxes annually. The region started reusing 2,000 of these boxes to mail eyeglasses instead of buying new boxes. Remaining boxes are available for pharmacy mailings.

Patient-care supplies

- Determine if cloth towels can be used and later sold for rags.
- Replace paper towels with air dryers.

The New York City Department of Sanitation estimates that a 1,000-bed hospital replacing paper towels with air dryers would achieve:

Cost savings per year: \$45,000

Waste prevention in pounds per year: 200,000

- Use cloth diapers.

Kaiser Permanente's Northwest Region switched from disposable to cloth diapers. Any hospital making this change needs to follow procedures for infection control and skin care. Kaiser found there was no change in costs or savings—it was a cost-neutral change:

There was no adverse effect on patient or staff safety.

It decreased the amount of solid waste going to landfills.

- Use worn diapers as cleaning rags.
- Provide decubitus-care mattresses instead of foam "egg-carton" mattresses.

Legacy Good Samaritan Hospital in Portland, Oregon (341-bed facility) purchased several hundred permanent waterproof mattresses to replace about 96 percent of disposable egg crate foam mattresses (it is still necessary to use foam mattresses in some situations). The initial purchase was significant, but the decision paid for itself in just one year.

Savings in purchasing costs per year: \$80,710

Disposal savings per year: \$817

Waste prevention in pounds per year: 16,350

- Eliminate duplicate admission kits.

Legacy Good Samaritan Hospital in Portland, Oregon (341-bed facility) stopped handing out starter admission kits to maternity patients because they received a special kit from the maternity department.

Net savings per year: \$3,547

Waste prevention in pounds per year: 2,704

- Replace disposable admissions kits (water pitchers, glasses, and bedpans) with reusables in patient rooms.

Butterworth Hospital in Grand Rapids, Michigan (529-bed facility) switched to autoclavable plastic bedpans.

Savings in purchasing costs per year: \$1,320

Waste prevention in pounds per year: 960

- Use washable linens, bed pads, underpads, gowns, and emesis basins.

Butterworth Hospital purchased 5,000 reusable underpads to replace 30,000 disposable pads each month.

Savings in purchasing costs per year: \$15,000

Savings in disposal costs per year: \$877

- Purchase reusable pillows.
- Convert blankets, mattress pads, and quilts into potholders (done by volunteers).
- Set up system where nursing staff evaluates personal care items such as aspirin packets, tissues, shampoo, baby wipes and diapers for reuse (following infection control guidelines) instead of automatically disposing of them.

Based on a pilot study of this approach, Butterworth Hospital estimates that implementing this type of system throughout the hospital will save about \$30,000 annually.

Medical/surgical supplies

- Eliminate unused items from custom surgical packs (once a pack is opened, unused items are discarded).

Surgery and purchasing staff from five Legacy Hospitals in the Portland area formed several committees to review the contents of its custom packs. They identified items that are not used regularly enough to justify inclusion in the various packs.

Net savings per year: \$30,000+

Total waste prevention in pounds per year: 11,000

- Consider switching from disposable to reusable medical instruments (e.g., stainless steel trays, laparoscopic instruments).
- Contact the manufacturer when one item in a surgical tray is causing the whole pack to outdate early (e.g., tetracaine in a spinal tray).
- Evaluate changing to a nontoxic x-ray developer.
- Purchase washable surgical and isolation gowns and sterilization trays.

Mercy Healthcare of Sacramento now purchases reusable liquid-proof surgical gowns and towels at six facilities:

Cost savings per year: \$60,000

Waste prevention in pounds per year: 50,000

- Mend gown ties so they last longer.
- Convert surgical drapes into biopsy cloths.
- Sanitize and reuse plastic fracture pans.
- Sanitize and reuse graduated measuring containers.
- Donate clean, unused operating room (OR) supplies for reuse overseas.

Cafeterias

- Use washable plates, eating utensils, glasses, and cups for cafeteria and patient service.

The New York City Department of Sanitation estimates that a 1,000-bed hospital switching from disposable to reusable food service items would achieve:

Cost savings per year: \$500,000

Waste prevention in pounds per year: 400,000

- Sell reusable mugs with no-spill lids, then offer discounts to anyone using their own mug.
- Start up a "think before you use" campaign to decrease use of disposable items: napkins, condiments, etc.
- Switch to a bulk milk dispenser for patients instead of individual milk cartons.
- Compost kitchen and food waste.

The New York City Department of Sanitation is doing a pilot study of separate collection of compostable food-service waste. Check with your local government recycling coordinator to see if this service is offered in your community.

Offices

- Assess need for photocopies and print only what is needed.

The Legacy Visiting Nurse Association in Portland, Oregon analyzed the process and flow of paper. Seven copies of each admitting record were made and distributed. They asked employees and customers how copies were used. Typically, fewer than 50 percent of copies were needed. Now copies are printed as needed and pending files are available on a computer.

Net cost savings per year: \$127,764

Waste prevention in pounds per year: 1,200

- Customize the distribution of reports (e.g., daily census).

The Legacy Good Samaritan Hospital in Portland, Oregon asked department managers which portions of reports they needed in hard copy and whether they would need hard copies once on-line viewing on a computer was available. Twenty-three percent responded that they did not need hard copies now, and 55 percent responded they would not need hard copies once on-line viewing became available.

Net savings per year: \$9,222

Waste prevention in pounds per year: 3,504

- Increase double-sided copying in central copy areas.
- Keep records on microfiche or make double-sided copies for paper documents.
- Consolidate multiple forms and reduce extra copies.
- Use fax machines that take plain paper so faxes do not need to be copied again.
- Keep report and memo writing to a minimum and limit distribution.
- Reuse paper only used on one side.
- Purchase recycled paper and print stationary, business cards, etc. on recycled paper.

Landscaping

- Use mulching mowers and leave grass clippings on the lawn so they can decompose naturally (grasscycling).

Kaiser Permanente Northwest Region (Clackamas, Oregon) replaced one-third of its mowing equipment to mulching mowers (three riding models and eight walk-behind models). These mowers are currently used to maintain 38 acres of lawn. Plans call for replacing all mowers over a two-year period.

Labor savings by eliminating bagging:

28 percent

Reduction in fertilizer: 33 percent

Eliminates 15,200 bags or 380,000 pounds of grass clippings each year. (One acre of grass generates about 400 25-pound bags of clippings yearly. This estimate varies with location and grass type.)

- Landscape using plants that grow slowly or have enough space so they do not need to be constantly trimmed.

Hospital-wide reuse

Set up a reuse area where employees and local schools can pick up used, yet still useful, items such as old binders, folders, paper clips, cassette tapes, plastic containers, etc. For information on how you can participate in a statewide materials exchange network, contact the California Materials Exchange (CalMAX) at (916) 341-6603. CalMAX issues a free quarterly catalog that lists materials wanted and available, which is also on the Internet at www.ciwmb.ca.gov/CalMAX/.

Recycle waste that can't be prevented

In 1993, three Portland hospitals recycled over 1 million pounds of materials, including office paper products, cardboard, plastic resins, glass, metal, and foam. This saved \$45,000 in avoided disposal costs.

- Set up a collection system, arrange to have items picked up for recycling, and educate staff. The following items are recycled in other hospitals:

*Corrugated cardboard**

White office paper

Newspapers

*Mixed paper**

Beverage containers (aluminum cans, glass bottles)

Steel cans (used by food service)

Plastics (Work with suppliers so goods are made from or packaged with the same plastic resin, so they are easier to recycle.)

* Stan Strickland from Kaiser Permanente Northern California Region analyzed the region's recycling options and found that for starting up its recycling program it was best to focus on paper and cardboard. The savings in avoided disposal costs for these bulky items make this a cost-effective approach.

- If you must use disposables, select ones that can be recycled.

The Legacy Health System in Portland, Oregon switched from paper/plastic blend disposable coffee cups to an all-plastic recyclable cup. Employees were also encouraged to bring their own mugs to the cafeteria for a discount.

Savings in purchasing costs per year: \$24,000

Savings in disposal costs per year: \$1,417

Waste reduction in pounds per year: 28,333

Appendix A: Types and amounts of waste generated at hospitals

Disposal Tonnage and Waste* Composition at Nine Hospitals in Los Angeles (3.09 tons per bed per year)		
Waste Category	Tons (from 9 hospitals)	Composition (in percent)
Paper	26,452	53.8
Cardboard	5,137	10.4
Kraft paper (shopping bags)	628	1.3
Newspaper	2,657	5.4
High grade paper	3,090	6.3
Mixed paper	14,940	30.4
Plastic	7,187	14.6
California redemption PET (polyethylene terephthalate) containers	45	.1
HDPE (high density polyethylene) containers	1,321	2.7
Film plastics	2,606	5.3
Polypropylene containers	361	.7
Polystyrene	926	1.9
Other plastics	1,927	3.9
Glass	893	1.8
California redemption glass containers	592	1.2
Other recyclable glass containers	168	.3
Other glass	134	.3
Yard Waste	794	1.6
Leaves and grass	794	1.6
Metals	1,295	2.6
Aluminum cans	302	.6
Other aluminum	163	.3
Ferrous metals	16	0
Tin cans	747	1.5
Non-ferrous (other) metals	67	.1
Other Organics	8,615	17.5
Food waste	3,920	8.0
Rubber	1,142	2.3
Wood	81	.2
Textile and leather	1,119	2.3
Miscellaneous	2,352	4.8
Other Waste	3,239	6.6
Disposable diapers	1,726	3.5
Inert solids	724	1.5
Household hazardous waste	789	1.6
Special Waste (e.g., grit, sweepings)	682	1.4
*Only refers to nonhazardous solid waste		

For more information contact Ellen Hae at Recycling By Nature, (408) 626-1917, or Jan Satt at the City of Los Angeles, (213) 237-1444.

Appendix B: Sources of information

Copies of most of these items are available from the California Waste Prevention INFO Exchange, (916) 341-6363.

City of Los Angeles, *Source Reduction and Recycling Element, Vol. 2: Solid Waste Generation Study*, April 1993, pp 197-204.

DiPietro, Robbe Charles, "Michigan Hospital Creates 'Recyclecare' Program," *BioCycle*, May 1991, pages 52-53. This article describes a program at Butterworth Hospital, Grand Rapids, Michigan, a 526-bed hospital with 3,300 employees. Contact at hospital: Daniel Stickles, Environmental Director.

Indiana Hospital Association, *The New Three Rs: A Solid Waste Management and Recycling Guide for Indiana Hospitals*, 1 American Square, P. O. Box 82063, Indianapolis, IN 46282. (317) 633-4870.

INFORM, Inc., *Making Less Garbage: A Planning Guide for Communities*, 381 Park Ave. So., New York, NY 10016-8806, (212) 689-4040, pp 62-67.

Harding Lawson Associates and Legacy Health System, *A Model Waste Prevention Program, Legacy Health System*, May 1994, Contact: David Allaway, Harding Lawson Associates, 227 SW Pine St., 3rd floor, Portland, OR 97204, (503) 227-1326.

Kaiser Permanente Northwest Region, *Green Team Update* (mulching mowers), July 1992. Contact: Pat Grant (503) 786-5542.

Michigan Departments of Commerce and Natural Resources, Office of Waste Reduction Services, P. O. Box 30004, Lansing, MI 48909, (517) 335-1178. *Case study: McPherson Hospital, Howell Michigan*, (136-bed community hospital).

New York City Department of Sanitation, *A Comprehensive Solid Waste Management Plan for New York City and Final Generic Environmental Impact Statement*, August 1992, pp 7-14, 7-15. Contact: Dexter Dugan, New York City Health and Hospitals Corporation (a city agency), (212) 391-7402.

Nenonen, Liisa, et al., "Simple O. R. Ways to Save the Earth," a two-page list of ideas to reduce waste in the operating room. Contact: Liisa Nenonen, The RACORSE Network, <http://www.ciwmb.ca.gov/BizWaste/FactSheets/Hospital.htm>

407 Vernon St., #305, Oakland, CA 94610, (510) 832-2868.

Slater, Pam, "Local Surgery Units Cutting Waste," *Sacramento Bee*, December 6, 1993.

Guidebooks available

American Hospital Association, *An Ounce of Prevention: Waste Reduction Strategies for Health Care Facilities*. Cost: \$29.95 (member), \$50 (nonmember); order number 057-007. To order call (800) AHA-2626. For more information contact: American Society for Healthcare Environmental Services, (312) 280-4458 (recommended by several recycling coordinators, includes waste prevention).

Minnesota Hospital Association (MHA), *Waste Not Book*. Contact MHA Public Affairs, (800) 462-5393 to order. A guide for hospitals on how to reduce and reuse. 75 pp. Cost: \$25.

For More Help

- Visit the California Integrated Waste Management Board's Web site at www.ciwmb.ca.gov.
- Preferred Packaging Procurement Guidelines, CIWMB, 1994. To order this or other CIWMB business waste reduction publications, visit the Web site, call (916) 341-6308 or the IWMB hotline: (800) 553-2962.
- For information on how to prevent waste, call the Waste Prevention Information Exchange, (916) 341-6363.
- CIWMB Buy Recycled Program, (916) 341-6473.